Community-Based Prevention Approaches

In the last decade or so, researchers, community organizers, and funding agencies have shown a heightened interest in community-based prevention programs. This increasing interest has been spurred by the convergence of two subtle but distinct approaches to prevention programs, each of which has evolved to the point where the local community is the "target" of a prevention effort.

In one approach, the community represents an area within which program designers can reach individuals, usually with a health promotion message, in an attempt to change behavior. In this "catchment area" perspective, program staff often define the community in terms of a media market and take advantage of efficient mechanisms for disseminating messages, such as electronic media or billboards.

An alternative approach, sometimes called the public health or "environmental" perspective, tends to focus on formal laws, policies, and practices that affect the production, distribution, sales, and marketing of alcoholic beverages, or formal mechanisms that affect the drinkers themselves, such as drunk driving laws. These prevention programs generally promote policy changes by working through community institutions such as planning commissions or licensing authorities, rather than aiming messages at the general population.

The growth of interest in community programs probably reflects the desire by program planners to combine appealing features from both approaches: the efficient means of reaching individuals in the catchment area approach, and the policy changes at the smallest formal legislative or regulatory setting, such as a city or county, in the environmental approach. Not surprisingly, current prevention programs often blend elements of these two approaches in various ways, as can be seen in the studies described later in this section.

This section presents some fundamental issues underlying community prevention efforts, as well as findings from some recent studies. Earlier community-based prevention studies can be found in a review by Gorman and Speer (1996). Additional sources of information on alcohol prevention projects can be found in Holder and Howard (1992), Greenfield and Zimmerman (1993), Farquhar and Fortmann (1992), and Giesbrecht et al. (1990).

Community Prevention for Heart Disease and Health Promotion: A Precedent

Researchers in the field of cardiovascular disease (CVD) set the precedent for community-based prevention programs. The first of these studies, carried out almost 20 years ago in clinical and work site settings, successfully reduced smoking, dietary fat intake, and other risk factors among individuals who were at high risk of developing CVD (Benfari 1981; Kornitzer et al. 1980). Later studies took a broader approach, targeting entire communities with strategies that combined community organization and health education (Carlaw et al. 1984; Farquhar 1978; Farquhar et al. 1990; Lasater et al. 1984; Murray 1986; Puska et al. 1985).

Some early CVD programs emphasized the power of the individual to alter one's own behavior. For example, the Multiple Risk Factor Intervention Trial (MR. FIT) required clinic patients to sign contracts with program staff stating that they would stop smoking, start exercising, and adopt other healthy habits to reduce their risk of CVD (Benfari 1981). Later programs at the community level targeted similar health behaviors, but instead of individual contracts, their strategies included community organization and the use of social marketing tactics to broadcast health messages (Farquhar et al. 1985).

While researchers in the field of alcohol abuse prevention can build upon the technical expertise and practical experience of these CVD programs, they face different challenges and opportunities in designing alcohol programs. One fundamental difference is that these CVD studies aim to alter a medical endpoint, that is, reducing heart attacks and strokes, by changing people's behaviors. In contrast, a program on alcohol abuse prevention will not have such a narrowly defined, clinical endpoint. Reducing traffic accidents and other problems associated with drinking, for example, but not necessarily the incidence of drinking, is a legitimate goal.

In addition, researchers in alcohol prevention programs must take into consideration that excess alcohol consumption can lead to trauma far more quickly than excess fat consumption or other risk factors can lead to CVD. They also must take into account the fairly complicated social standards associated with drinking that generally do not exist with eating fatty foods or other health habits that contribute to CVD. Alcohol researchers have the advantage, however, of many ready-made opportunities to develop prevention efforts by tapping into local regulatory systems that address alcohol safety issues.

For these and other reasons, community-based alcohol programs require links between public education, community organizations, and agencies involved in regulatory and environmental policies. Hence the strategies used in the studies described below required innovations beyond those used in the CVD studies.

Methodological Concerns

In community prevention research, by definition, whole communities form the intervention and control groups, rather than individuals within those communities. These larger samples may allow researchers more precision in estimating some outcomes, such as the likelihood of becoming intoxicated, or may permit them to capture relatively rare events, such as alcohol-related injuries.

Determining how many communities are required for a study presents a challenge due to the year-to-year variability in alcohol-related problems at the community level, as well as differences in community sizes and growth trends (Saltz et al. 1992). Ideally, one would recruit a large number of communities, with half of the communities receiving the intervention and the other half serving as controls. Because conducting an intervention in just one community can be costly, researchers must decide where to put their resources. They must choose whether to maximize the prevention program activities, or the scope and precision of the evaluation, or the number of communities involved, the latter of which is particularly difficult since the number needed for finding statistical significance is uncertain. Each research team must find the best balance of these competing claims on resources.

Choosing communities to recruit into a study is also problematic. The selection of communities is often related to proximity to the research team rather than any strong theoretical rationale. There seems, too, to be an implicit selection of smaller, and likely more manageable, communities over large cities or districts. Moreover, the choice of outcome measures—such as single-vehicle, nighttime crashes—may dictate selection of communities, because of jurisdictional constraints on collecting and reporting data.

Conventional wisdom would argue that adopting the classic experimental design, that is, randomly assigning communities to be either the intervention (treatment) group or the control group, would maximize the validity of results (Wagenaar et al. 1994). Some researchers have taken a different position, however, in that they purposely select intervention communities that appear most accommodating or ready to adopt the treatments the researchers are evaluating (Holder et al. 1997). They argue that if an arbitrary selection of communities produced no impact, one could not be sure if the intervention itself was without merit, or if it would have worked in a community that was more supportive. The merit of this argument would seem to depend first on whether

a community's "readiness" can be assessed, and second on one's conception of an "intervention." Some might argue, for instance, that getting the community ready should be part of the intervention itself.

Finally, a range of other methodological issues arise in community intervention studies, including:

- How to adjust for the fact that when data are collected from intact social units, they are more homogeneous than one might find in a purely random sample (Murray and Wolfinger 1994).

- How to design and conduct evaluations in dynamic environments (Goodman and Wandersman 1994; Pentz 1994; Stout 1992).

- How to evaluate interventions as they evolve in different ways at different sites (Hansen and Kaftarian 1994).

- How to maintain the scientific integrity of the research design within the context of working with communities (Howard and Barofsky 1992).

An excellent overview of study design and other methodological issues can be found in a set of papers from a 1995 Symposium on Community Intervention Trials published in the *American Journal of Epidemiology* (Donner 1995; Fortmann et al. 1995; Green et al. 1995; Koepsall et al. 1995; Murray 1995).

Recent Research Results

A review of recent literature reveals results from three major community-based studies in the last 3 years to prevent alcohol problems. The first, Project Northland, builds upon school-based prevention programs but extends beyond the classroom into the community. The second, Communities Mobilizing for Change on Alcohol, focuses on reducing youth access to alcohol. Finally, the Community Trials Project targets alcohol-related trauma through integrated

interventions focusing on community laws and policies. (An additional community project, the "Saving Lives Program," is described in the section "Reducing Alcohol-Impaired Driving" earlier in this chapter.)

Preventing the Onset of Adolescent Drinking: Project Northland

As school-based prevention programs have become more refined and informed by research, they have expanded from a focus on the individual to a broader approach that includes environmental influences, in particular the effects of peers. Whereas early programs may have emphasized the physical effects of alcohol or an individual's decision-making skills, current programs tend to have students examine their perceptions of alcohol use among peers, learn to resist peer influence, or take part in activities that involve peer education and events outside the classroom.

Project Northland, which focused on high-risk, relatively heavily drinking communities in northern Minnesota, is representative of this general trend. Starting in 1991, the project team surveyed approximately 2,000 students who were in sixth grade and tracked them for 3 years (Perry et al. 1996). The researchers combined school districts to form a sample of 20 sites, then randomly assigned 10 sites to the intervention, or treatment program. The other 10 sites, which served as a comparison set, continued whatever programs they had in place.

The project team developed three different treatment programs, one each for grades six through eight. Each program included components not only for students, but also for parents and the larger community. Thus, the students were subject to a "multiyear, multilevel" intervention. The sixth-grade curriculum, for example, combined classroom sessions with homework exercises that involved the children's parents. In addition, the intervention included forming communitywide task forces that developed policies related to underage drinking.

Similarly, the seventh-grade program comprised an 8-week, peer-led classroom curriculum with peer-directed, alcohol-free activities outside the classroom, home program booklets, and newsletters to parents. In addition, the intervention communities mobilized to pass local ordinances and resolutions to limit alcohol availability to youth. Businesses and schools provided incentives for students who pledged to be alcohol- and drug-free.

The eighth-grade curriculum encouraged students to look specifically at individuals and organizations that influenced adolescent alcohol use. Students collected information from various community members through interviews, then formulated model alcohol policies in a simulated town meeting. Parents attended student-produced plays with an alcohol prevention theme. As in the prior year, eighth-grade peers led alcohol-free "alternative" activities. At the same time, the task forces continued intensified efforts to develop local alcohol-related policies.

From grades six through eight, the materials and activities moved from a focus on the self to interactions with parents, peers, and the community at large, thus engaging the students in expanding "concentric circles of influence." By the eighth grade, the students were involved in the larger community in ways that would presumably foster both their own and the community's ability to change the environmental influences on adolescent drinking. More details on the program, including measures of participation, can be found in Williams et al. (1995) and Komro et al. (1994).

The researchers surveyed 2,350 students at the beginning of the study, then conducted follow-up surveys at the end of each of the 3 school years. They managed to retain 1,900 students for survey purposes throughout the entire study period, with most of the attrition due to students moving from the area. The surveys focused primarily on the use of alcohol (past month and past week), tobacco (cigarettes and smokeless tobacco), and marijuana. The researchers assessed the "tendency to use alcohol" by creating a scale that combined

certain survey responses, such as linking a student's actual use of alcohol with his or her intentions to use it. In addition, the project team measured peer influence, self-efficacy, perception of access to alcohol, and mediating factors such as communication with parents.

By the eighth grade, students in the treatment sites had lower rates of alcohol use, both in the past month and past week, as well as lower scores on the "tendency to use alcohol" scale. These statistically significant differences were observed despite the fact that the intervention sites, though selected at random, had higher alcohol use rates at the beginning of the study.

For example, at the start of the study, sixth graders in the treatment sites had almost double the rate of past-month alcohol use of those in the comparison sites (7.0 vs. 4.0 percent) (figure 1). By the time they reached eighth grade, however, students at the treatment sites had a significantly lower rate of past-month use (23.6 vs. 29.2 percent). Similarly, in sixth grade, the intervention group had nearly double the rate of past-week use (3.8 vs. 2.0 percent), but by eighth grade their rate was again significantly lower

Figure 1: Results from Project Northland
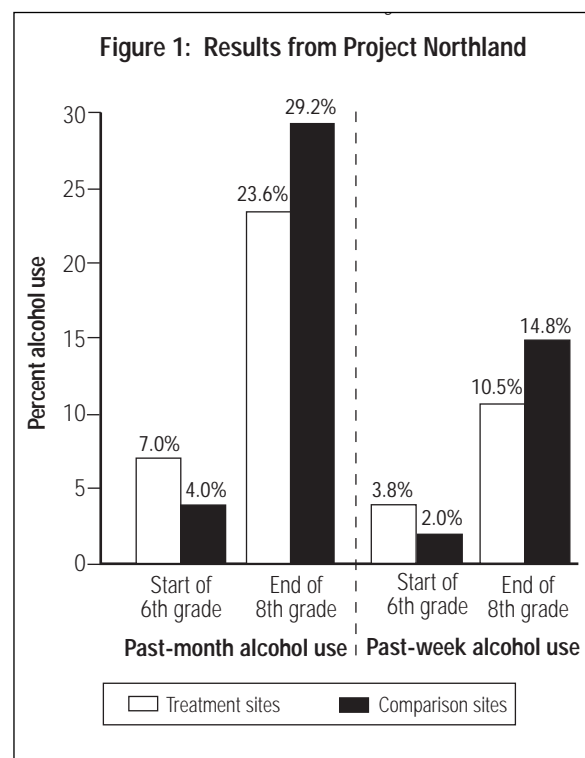
than the comparison group (10.5 vs. 14.8 percent). No significant differences were observed for cigarette, smokeless tobacco, or marijuana use—which were not targets of the program—except for a higher initial rate for cigarette use in the intervention sites (6.9 vs. 4.7 percent).

On the measure of general peer influence, students in the intervention sites had lower scores in the eighth grade than did those in the comparison sites (at the start of the study there were no significant differences between the sites). No significant differences were observed between the treatment and comparison schools in terms of students' self-efficacy, perceived access to alcohol, or communication with parents.

Because the intervention sites started at somewhat of a disadvantage, in that more students used alcohol when the study began, the research team analyzed the data in terms of student alcohol use at the start of the study. When they looked only at students who were not drinking at the beginning of the study, the researchers found not only lower alcohol use by eighth grade in the treatment sites (15.3 vs. 21.2 percent in past month), but also lower use of cigarettes (15.5 vs. 24.6 percent) and marijuana (3.1 vs. 6.2 percent). In contrast, none of the rates of use changed among students who were already "users" at the study's beginning.

The overall implication for the study was that the program affected those students who had not yet begun to use alcohol, but had little or no impact on those students who were already drinking.

This study focused on adolescents and their use of alcohol and other drugs, rather than on the effects the programs may have had on the larger community and its alcohol consumption or related problems. As with most community prevention studies, the effect of the community-level activities such as plays for parents and community task forces could not be estimated separately from the other program elements. Some findings suggest, however, that these activities outside of the classroom may have had limited impact on the community as a whole. For example, at the end of the study, the students

in the intervention sites and comparison sites showed no significant differences in their perceptions of alcohol availability or the consequences of driving after drinking. Future research could test the efficacy of these other activities by systematically excluding them from the overall program to see if they are necessary or not, or if there is an important interaction between the classroom activities and these other elements.

Underage Access to Alcohol: Communities Mobilizing for Change on Alcohol

This community-organizing effort was designed to reduce drinking and drinking-related problems among 15- to 20-year-olds by reducing their access to alcohol. Communities Mobilizing for Change on Alcohol (CMCA) aimed to build the capacity of communities to change their own policies and practices related to alcohol access (Wagenaar et al. 1994). It was hoped that the intervention would better equip the communities to handle not only a wider range of alcohol-related problems, but also other health and social problems.

The CMCA project team identified five focus areas: (1) influences on community policies and practices, including community action to change policies, pressure on enforcement agencies to enforce existing policies, and influences on parents and others to support these efforts; (2) the policies and practices themselves, in particular formal laws against serving minors and informal practices related to enforcing those laws; (3) youth access to alcohol, that is, the relative ease or difficulty with which minors could obtain alcoholic beverages, which was thought to affect the final two components; (4) youth alcohol consumption; and (5) youth alcohol problems.

The researchers recruited 15 communities in Minnesota and western Wisconsin, each of which had a school district with at least 200 ninth graders. The researchers formed seven pairs of communities, plus one group of three communities, by matching for their size (the populations ranged from 8,000 to 65,000), State, proximity to

a college or university, and baseline data from an alcohol purchase survey. Each set of communities had one intervention site that had been selected at random and one or two comparison sites.

The researchers sought to organize the communities to develop their own specific interventions to influence underage access to alcohol. As determined by each community, any number of activities could be included, such as using decoy operations (in which underage buyers attempt to purchase alcohol at selected outlets), citizen monitoring of outlets selling to youth, requiring keg registration, developing alcohol-free events for youth, shortening hours of sale for alcohol, initiating responsible beverage service (RBS) training, and developing educational programs for youth and adults (Wagenaar and Perry 1994). To coordinate the activities, the CMCA project hired, trained, and supervised a part-time local organizer from within each community.

The researchers gathered evaluation data before the interventions began and again 2.5 years later, focusing on questions about alcohol use, purchasing behavior, perceptions of availability, and other measures. They conducted surveys of 9th-grade students at baseline, 12th-grade students at baseline and follow-up, 18- to 20-year-olds, alcoholic beverage merchants, and outlets in which 21-year-old women who appeared to be younger attempted to purchase alcohol without showing identification. Other methods included monitoring mass media and collecting process-oriented data to capture how the intervention moved ahead and how the staff and communities surmounted obstacles in reaching their objectives.

The results of the intervention were mixed. After the 2.5-year program, merchants checked more frequently for age identification, reduced their likelihood of sales to minors, and reported more care in controlling sales to youth (Wagenaar et al. 1996). The telephone survey of 18- to 20-year-olds showed lower frequency of providing alcohol to other minors and decreased likelihood of

buying and consuming alcoholic beverages themselves. Disappointingly, these results were not, in themselves, statistically significant. The researchers argue, however, that progress was made consistently in all seven of the intervention sites. Future analyses of these data or replication of the study may help to discern whether the results indicate a meaningful impact.

Meanwhile, the baseline data from CMCA is providing insights into the nature of underage drinking, with a number of papers published in the past 3 years. As one example, an analysis of the baseline data on 12th graders showed that the young men tended to drink more if they had heavily drinking peers, liberal drinking norms, the perception that alcohol was readily available, and the sense that parents and school officials were unlikely to catch them drinking (Jones-Webb et al. 1997). The pattern was similar for female 12th graders, except that their consumption was not influenced by their perceptions about availability.

Preventing Injuries and Deaths Related to Drinking: The Community Trials Project

The Community Trials Project (CTP) differed from the previous two studies in two important respects: first, the project aimed to reduce injuries and deaths related to drinking rather than alcohol consumption itself, and second, it sought to reduce trauma over the entire population rather than in adolescents exclusively (Holder et al. 1997; Treno and Holder 1997*a*). The project was conducted in three areas—northern California, southern California, and South Carolina—each containing one experimental community matched with one comparison site. Five interacting project components, with the goals and actions listed below, were successfully implemented in all three experimental communities.

- **"Community Knowledge, Values, and Mobilization" Component:** Included developing community coalitions to address local problems, increasing the community's

awareness of the problems, and obtaining support for project activities through media events and other means (Holder and Treno 1997; Treno and Holder 1997b,c; Treno et al. 1996).

- **"Responsible Beverage Service Practices" Component:** Primarily sought to reduce the risk of intoxicated and underage customers in bars and restaurants by training a substantial number of managers and servers (Saltz 1997a,b; Saltz and Stanghetta 1997).

- **"Reduction of Underage Drinking" Component:** Placed pressure on retailers to reduce sales to underage youth and included the implementation of police stings (Grube 1997a,b; Grube and Voas 1996).

- **"Risk of Drinking and Driving" Component:** Aimed to reduce the incidence of driving under the influence (DUI) of alcohol, and resulted in significant increases in police enforcement activity against drunken driving (Voas 1997; Voas et al. 1997).

- **"Access to Alcohol" Component:** Attempted to reduce the availability of alcohol, which led to community action directed at regulating alcohol outlets (Gruenewald 1997; Gruenewald et al. 1996a,b; Millar and Gruenewald 1997; Reynolds et al. 1997).

On the basis of their preliminary findings, Holder and colleagues (1997) characterize the CTP as successful in several respects. The primary outcome of interest, alcohol-involved traffic crashes, was estimated to have dropped by about 10 percent annually over the 28-month intervention period for which data were available. The community mobilization effort carried out the interventions successfully and with significant community support, especially when the participants understood the research base for the strategies. Media coverage of alcohol-related trauma and control policies increased as a result of training community members. And finally, sales of alcoholic beverages to underage decoys

were reduced. To follow are some details about the five project components, their strategies, and the results.

Community Knowledge, Values, and Mobilization. This component aimed to help the communities become aware, concerned, and organized enough to develop and implement their own action plans for addressing local problems. Creating a core of effective program staff was a critical first step. In all three experimental communities, local program staff were hired during the first project year. A project coordinator, who was a trained and experienced community organizer, provided regular on-site technical assistance to all three communities.

Keeping local staff and coalitions informed was a top priority. Early in the first project year, orientations were held in each community to provide details to local staff, coalition members, and community leaders about the project goals and components. During the second project year, local staff received training in "media advocacy" to help gain media coverage for project messages and activities. Also during the second year, the scientific staff provided training on project research rationales and component designs to local staff and coalition members. Additional guidance was provided by a professional advisor on political and legislative action, alcohol problem prevention, and community organization and activism.

As the communities mobilized, the broad-based coalitions provided general support for project goals, while task forces developed specific strategies and intervention plans. Among the strategies that were developed and implemented by one or more of the communities are the following: increased arrests for DUI, establishment of police stings, adoption of alcohol outlet density regulations, training for clerks and those holding licenses to sell alcohol, implementation of RBS standards at community events, and introduction and use of passive DUI breathalyzers. (The sections that follow provide details about some of these strategies.)

On the basis of the study results, the researchers identified six points as essential in mobilizing communities to support prevention programs:

- It is important to explain the research base for the interventions to the community participants.

- Existing community coalitions may take their own lead and require only project staff guidance when considering specific interventions.

- Preexisting community support for project interventions is essential to developing intervention programs rapidly.

- Existing support for project interventions among community leaders may be used to focus mobilization efforts.

- Community events such as local festivals may provide opportunities for intervention and to galvanize public support.

- Media events may generate project enthusiasm.

These experiences were seen to parallel those of community intervention efforts in other countries (Gorman and Speer 1996; Midford et al. 1995) as well as in the United States (Hingson et al. 1996; Wagenaar and Perry 1994).

Responsible Beverage Service Practices. The goal of this component was to reduce the likelihood of customer intoxication at licensed bars and restaurants by implementing RBS practices (Saltz 1997; Saltz and Stanghetta 1997). Specifically, these practices were (1) to monitor customer consumption of alcohol and pace the more heavily drinking patrons to prevent intoxication, (2) to prevent intoxicated patrons from driving or engaging in other risky behaviors, (3) to serve drinks in standard serving sizes, (4) to promote consumption of food and nonalcoholic beverages, and (5) to avoid price promotions for alcoholic beverages, such as "two-for-one" sales and "happy hours."

The experimental communities met these objectives through several tactics. They obtained

support from local and State hospitality organizations for RBS training, then provided the training, using a standard curriculum, to managers and servers at licensed alcohol outlets. In addition, they increased enforcement of laws regarding service to intoxicated customers, obtained endorsement of RBS from civic bodies and organizations, and explored the use of local licensing or zoning authority to require RBS practices.

To evaluate this component, the research team sent trained associates to a sample of establishments and had them order enough drinks to require intervention on the part of the server. Since the researchers were looking for effects of this component at a *community* level in the experimental sites, the sample included some establishments that had undergone voluntary training and others that had not. Although prior research has demonstrated that RBS training improves server practices in a given establishment, this study suggests that voluntary training in a *portion* of a community's establishments has little effect on the community as whole. This conclusion is supported by a preliminary analysis, in which no significant differences in server intervention were observed between experimental and comparison sites (Saltz and Stanghetta 1997).

Reduction of Underage Drinking. This component made use of three intervention strategies: enforcement of underage sales laws, clerk training and outlet policy development, and media advocacy (Grube 1997*a,b*; Grube and Voas 1996). As part of this effort, local police sent warning letters to all outlets informing them that routine enforcement of underage sales laws was being initiated. The letters were followed by a series of decoy operations in which the police had underage buyers attempt to purchase alcohol at selected outlets. Outlets selling to the decoy buyers were cited. To further increase perceptions of enforcement, warning letters reminding off-license owners and managers about ongoing decoy activities were regularly sent to all outlets. These activities were combined with a media advocacy campaign designed to elicit community support and to raise awareness of increased enforcement among owners and managers of

businesses like liquor stores and markets that sell alcohol for consumption off-site.

The researchers found that prior to the intervention, randomly selected outlets in the experimental sites were about equally likely as those in comparison sites to sell alcohol to an apparent minor. After the intervention, however, experimental community outlets were about half as likely as those in comparison sites to sell alcohol to an apparent minor.

Risk of Drinking and Driving. This component also used three intervention strategies: expansion of DUI news coverage, implementation of sobriety checkpoints, and use of a special breath-testing program (Voas 1997; Voas et al. 1997). Expanded DUI news coverage was achieved through the media advocacy efforts of community coalition members, who worked with the media consultant and police department leadership. Releases to the news media reported changes in DUI enforcement, covering topics such as the novelty of new breath sensors; the use of DUI "sweeps"—intensive efforts on a single night with multiple roadblocks; and the development of special patrols. Police departments established sobriety checkpoints for random breath testing of motorists in each of the experimental sites. In two of the three sites, a special breath-testing program was initiated in which DUI police patrols were staffed with additional officers and provided with breath testers concealed in flashlights. These additional enforcement efforts significantly increased arrests for DUI within these two sites.

The activities of this component had a statistically significant impact upon traffic crashes involving alcohol. The overall reduction in alcohol-involved crashes, compared with control sites, was 78 crashes over a 28-month intervention period; this represents an annual reduction of 10 percent.

Access to Alcohol. The final component used three intervention strategies as well: mapping and publicizing the connections between the geographic availability of alcohol and alcohol-related problems, developing local planning and zoning policies to regulate the density of alcohol outlets, and encouraging community action to revoke licenses from problem outlets (Gruenewald 1997; Gruenewald et al. 1996*a,b*; Millar and Gruenewald 1997; Reynolds et al. 1997).

Early in the intervention, researchers made maps of the experimental communities that displayed the denser pattern of alcohol-related crashes around the areas with higher concentrations of outlets. Guided by the maps, community coalitions and planning and zoning departments developed policies that increased the distance requirements between outlets and strengthened regulation of problem outlets. Community groups joined in these efforts by overseeing license renewals and staging protests against problem outlets. Ultimately this component led to greater local input in license renewal; new regulations regarding special event permits, such as banning alcohol at some public activities; and successful protests of licenses that eliminated sales of alcohol from problem outlets.

Commentary and Future Research Needs

While none of these community-based alcohol prevention studies has reported substantially large impacts on their chosen targets, a real effect may be seen in all of them. Each described study was predicated on the belief that working at the community level could produce a synergism not observed with smaller scale interventions—that is, with a communitywide effort, the final outcome would be greater than merely a sum of the individual parts. However, individual aspects of these studies—such as Project Northland's curriculum materials and the DUI enforcement campaign of the CTP—were so well developed that the observed impact might have been achieved even without the benefit of other community activities.

Researchers in the field of CVD prevention (Koepsell et al. 1995) raised a related question regarding their experiences with community-based interventions. They describe the effects of these programs as "quite modest" even though

great effort and funds were expended on them. These authors go on to say:

> Such questions point out a need for future community prevention studies to incorporate cost-benefit analysis along with measures of program impact. Policy makers and communities are not typically swayed solely by the fact that some reduction in a given problem can be achieved. Rather, they want to know how much such a reduction will cost and how that would compare to other alternatives to improving the community's health. (p. 598)

These cautionary comments raise the additional issue of making generalizations about the outcomes of these community studies. A particular impact demonstrated by a study may not be detected in other settings where implementation may be less intense, where evaluation data may not be available, or where the program does not benefit from a "halo" derived from academic involvement. Thus, neither the costs nor the benefits of conducting an intervention in one community will necessarily transfer to other communities.

A related concern is how to sustain the impact of community interventions. The impact may depend on large infusions of resources, or fade in time as the novelty of the interventions wears off. These concerns are perhaps more relevant to educational or awareness campaigns that require continuous sources of money rather than, for example, zoning law changes, which would presumably continue in force with lower maintenance costs. Even law enforcement, however, requires a commitment of will and money to be sustained over the long run.

Not all community-based alcohol interventions are expensive, however. The CMCA intervention entailed one half-time staff member per community with some support from a university. Another relatively inexpensive program, of the Addiction Research Foundation in Toronto, Canada, has been working to help communities in Ontario develop municipal alcohol control

policies by disseminating model policies and making brief presentations to municipal officials (Gliksman et al. 1995).

Moreover, progress may be hastened if, in addition to conducting large, comprehensive intervention studies—which by their sheer cost will be limited in number—the field develops smaller studies that break community interventions into component parts for closer study. This strategy and other important topics for future research efforts are described below.

Closer Investigations

Our understanding of comprehensive interventions would be enhanced if more were known about how to model specific components of the interventions. To take a relatively simple example, we would like to know how much effort it takes to make a community aware of something: How many messages are needed? Of what type? Over what time frame? And how do environmental factors such as newspaper readership and community size interact with the process?

In a different arena, one might ask about the impact of law enforcement "stings" of outlets. How many does it take to get other owners' attention? What accelerates or impedes the diffusion of information to those businesses, given that some are very small-scale operations and some have owners and staff with limited proficiency in English? Does an environmental change reach its greatest impact immediately, or does it have its greatest influence on the generation that comes to drinking age after the change is in place?

These questions are not only a pursuit of answers for their own sake but would also inform the more comprehensive studies as well. Apart from the tradition of "time-series" modeling, in which the time, intensity, and duration of the intervention must be specified, the field does not usually address the question of how best to model an intervention. Usually, there is an implicit

pretest versus posttest comparison, as though the intervention were a discrete event falling in between those two time points. Greater knowledge of individual intervention processes may enable the use of more powerful analytic tools tailored either to interventions that are cumulative over time or to studies better characterized as relatively short "blips" or spikes, such as law enforcement campaigns.

Mobilization Strategies

In the area of community mobilization, researchers have attained much practical experience and have made their knowledge available though guidebooks and case studies. As a topic of formal research, however, community mobilization remains underdeveloped. Among the studies described herein, the CMCA study most strongly emphasized community organization as a central component rather than a supporting activity. Although the researchers reported some measure of success, it would have been helpful to compare their approach with competing models of community organization to see where a given strategy worked best and least well. This was beyond the scope and budget of the CMCA project, but future research could address these specific strategy questions directly, without entering into matters of overall design or final impact.

To look at but one major issue bearing upon community mobilization, there is an underlying, implicit divergence of perspectives running through discussions on intervention strategies. This issue has to do with whether a community is considered a homogeneous collection of individuals moving together in some way, or whether the community comprises a complex mix of individuals with different values, knowledge, and ability to influence public affairs. Of course, the latter is closer to the truth, yet most discussions of community interventions treat the community as though it had one set of values or moved in concert toward an increased level of awareness.

An alternative approach could focus on identifying various community players and, like a political campaign, enhance the support of those who are already "loyal" to the goals of the intervention, avoid mobilizing those who are in opposition, and work on the "swing votes." This "political campaign" strategy is not necessarily the superior approach, but without some kind of formal investigation, community-based interventions will continue to be dominated solely by conventional wisdom regarding the place and value of task forces, collaborations, and coalitions.

Novel Interventions

Another important area of future effort is the development of novel interventions. The scope of current community-based interventions is rather narrow. All three of the studies described previously, for example, aimed to reduce adolescent access to alcohol. In part, this strategy reflects an understandable conservatism to employ more conventional interventions in large-scale projects. Smaller studies, however, could explore more unusual strategies while still operating at the community level. For example, collaborations could be developed with alcohol retailers to promote low-alcohol and alcohol-free beverages, or local fees could be used to support closer monitoring of alcohol licensees, as some communities are initiating on their own.

The call for novelty might also involve the targets chosen for prevention. Compared with underage drinking, for example, very little has been designed to reduce alcohol-involved violence. In part, this merely reflects a less developed understanding of the incidence and sources of violence in the community. Still, some existing interventions, such as reducing teenage access to alcohol and enforcing RBS practices, could cut a community's level of violence. Indeed, a community initiative in Australia's Gold Coast employed a combination of RBS and community policing that appears to have reduced alcohol-related violence in one notorious tourist center (Homel et al. 1997). (For more information on alcohol and violence, see the first chapter in this report.)

In Closing

Although community-based prevention research is in its early development, interest in full-scale community studies of the kind described here should be complemented with a range of smaller studies to allow better identification of potentially powerful interventions and the best ways of implementing them. This approach would require peer reviewers, policy makers, and funding agencies to recognize the value of such modest studies even where a "final" answer regarding impact is not forthcoming.

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